



RESEARCH DEPARTMENT

Transmitting aerial for the Dundee v.h.f. television station

TECHNOLOGICAL REPORT No. E-107

1964/48

**THE BRITISH BROADCASTING CORPORATION
ENGINEERING DIVISION**

RESEARCH DEPARTMENT

**TRANSMITTING AERIAL
FOR THE DUNDEE V.H.F. TELEVISION STATION**

Technological Report No. E-107

(1964/48)

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TRANSMITTING AERIAL FOR THE DUNDEE V.H.F. TELEVISION STATION

INTRODUCTION

The Dundee television relay station came into operation on 6th July 1964. It provides a service to Dundee only.

SUMMARY OF INSTALLATION

<u>Site:</u>	The site is at Dundee Law in the centre of the town, grid reference NO/391313, height 571 ft (174 m) a.m.s.l.		
<u>Support Structure:</u>	The support structure consists of a 90 ft (27 m) square-section self-supporting tower oriented with one side on a bearing of 77° ETN.		
<u>General Arrangement:</u>	See Fig. 1.		
Channel:	Channel 2, with vertical polarization is used. Both vision and sound carriers are offset + 16.875 kc/s.		
Aerial:	The aerial ¹ consists of a single vertical dipole mounted on a bearing of 170° ETN and spaced 5 ft 4 in (1.62 m) from the tower axis. The mean height is 80 ft (24 m) a.g.l.; at this height the tower side dimension is 1 ft 3 in (0.38 m).		
Power:	A translator with an output power of 10 W is used.		
Templet and Horizontal Radiation Pattern (h.r.p.)	See Fig. 2 and Note.		
Gain:	Mean intrinsic and net gain		0 dB
	<u>Deduct:</u> feeder loss (type RPC 2603)	0.8 dB	
	network loss	0.6 dB	1.4 dB
	Mean effective gain	- <u>1.4 dB</u>	

Programme Link:

The programme is obtained by direct reception of the Channel 5 (vertical polarization) transmissions from Forfar. The receiving aerial consists of a 3-element Yagi mounted on the transmitting aerial tower at a height of 30 ft (9.1 m) a.g.l. The aerial is shrouded to give protection against precipitation-static interference.

Note:

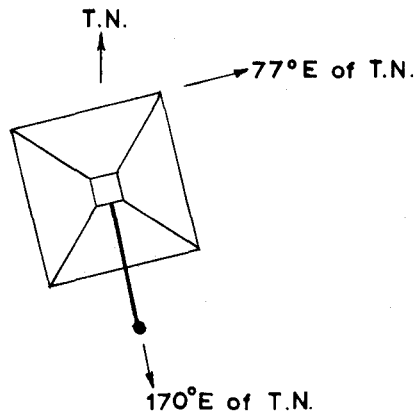
The aerial design was based on a theoretical prediction of the h.r.p. assuming a cylindrical support mast electrically equivalent to the square tower section. This approximation gives reasonable accuracy in view of the small electrical size of the tower cross-section ($0.066 \lambda^2$). An experimental check of the h.r.p. was therefore unnecessary.

REFERENCE

1. Detailed information on the construction and dimensions of the aerial is given on drawings held by BBC Planning & Installation Department as follows:

PID. 9047.2.1A General Arrangement of Aerials on Tower.

PID. 9047.2.1X General Arrangement of Transmitting Dipole.



Plan of transmitting aerial

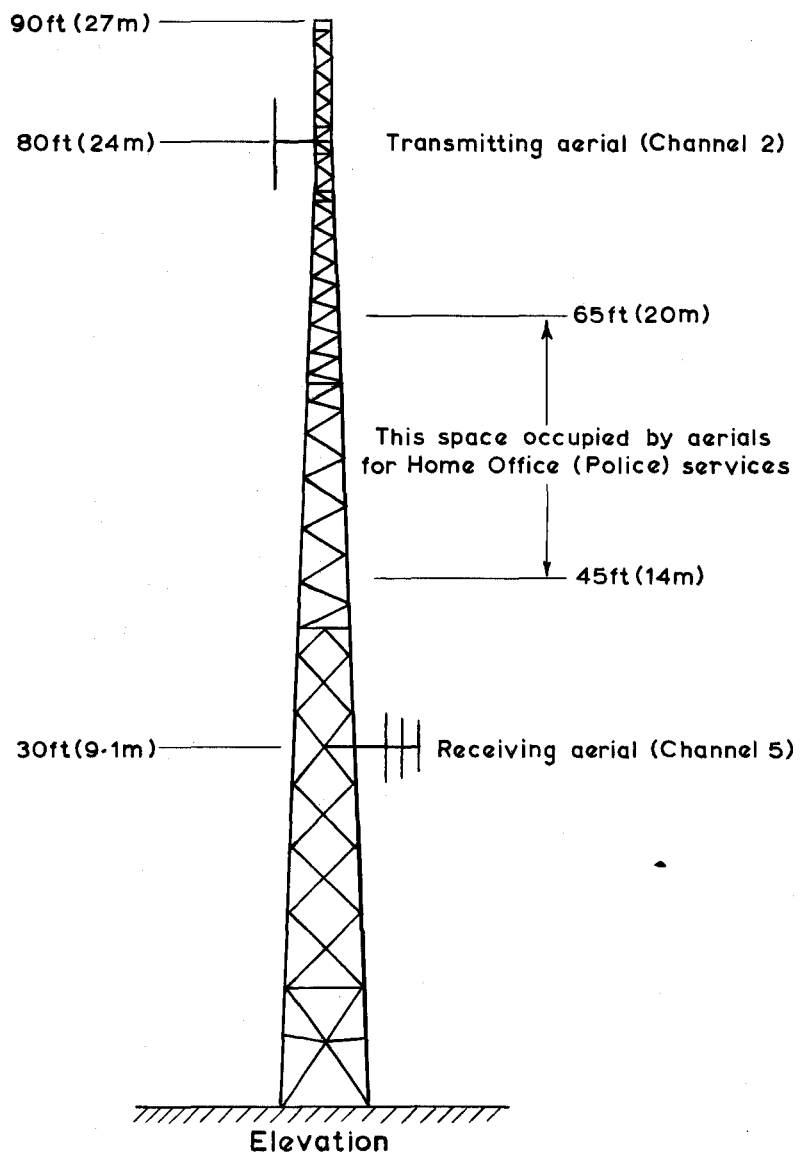


Fig.1 General arrangement of aerals on tower

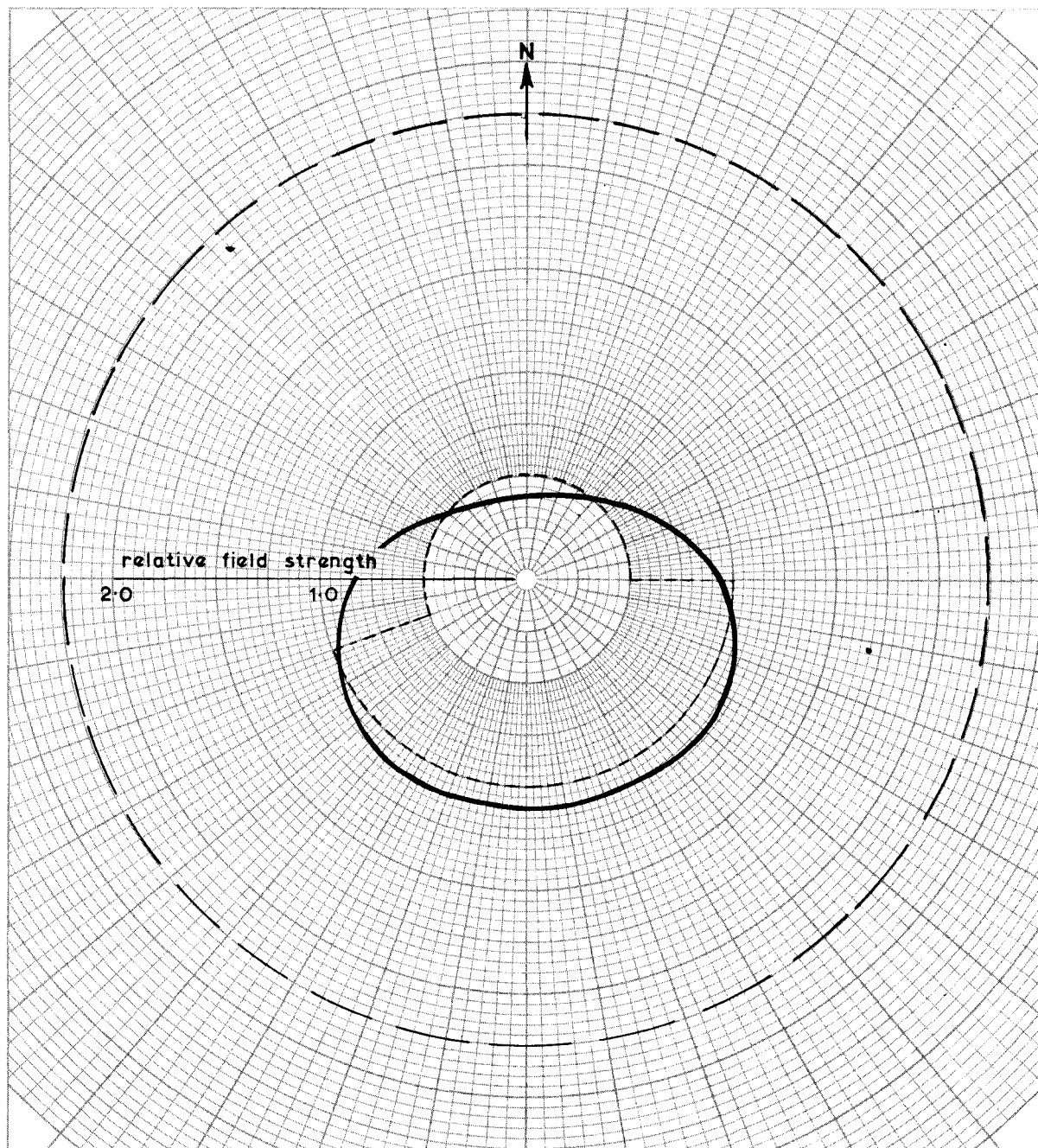


Fig. 2 Templet and horizontal radiation pattern

VERTICAL POLARIZATION

Channel 2 (Vision carrier 51.75Mc/s, Sound carrier 48.25Mc/s)

Mean effective gain -1.4dB ——— Maximum permissible E.R.P.

Transmitter power 10W - - - - - Minimum desirable E.R.P.

Mean E.R.P. 7.2W

Unit field corresponds to an E.R.P. of 10W